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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,507	10/12/2001	Ken C. K. Cheung	OCEANIT	9787

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EXAMINER

DINH, TIEN QUANG

ART UNIT	PAPER NUMBER
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3644

DATE MAILED: 09/03/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/975,507

Applicant(s)

CHEUNG ET AL.

Examiner

T. Dinh

Art Unit

3644

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) 5-14, 16, 38 and 39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 15, 17-37 and 40-47 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Please update the status of the Provisional Application.

Election/Restrictions

Applicant's election with traverse of Species A in Paper No. 6 is acknowledged. The traversal is on the ground(s) that the claims of numerous species do not relate to materially different devices, products or processes. This is not found persuasive because the applicant has not submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case.

The requirement is still deemed proper and is therefore made FINAL.

Claims 8-14, 16, 38, and 39 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 6.

Please note that claim 16 does not read upon the elected species. Applicant should note that claim 37 does read upon the elected species.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the additional pressure

transducers (mounted taps or manometers) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 15, 17-24, 25, 28, 29, 31, 36, and 47 are rejected under 35 U.S.C. 102(b) as being anticipated by Lurz.

Lurz discloses a conformable skin element system having one or more conformable skin elements (each skin element are made up of parts number 1-4), that are shaped elements that inherently have more than two sides (we live in a three dimensional world) that are mounted on a surface of a vehicle, a controller/micro-controller 7 (with computer chips) powered inherently by a power supply, connections for coupling the skin elements to the controller (with wires), and a closed feedback control loop for generating and transmitting signals between the skin elements (see figure 1 and specification), the controller, and the connections for conforming the skin

Art Unit: 3644

elements to desired deformations. The skin elements are pressure-transducer sensors 1, 3, and 4 that are piezoelectric in nature. The pressure-transducer provides signals to the feedback loop. The actuatable material is selected from mechanical, pneumatic, magnetic group (see column 4). Re claim 31, the skin element is the composed of elements 1-4. Re claim 22 and 23, after the activation, the skin element would conform to the vehicle shape from a mounting perimeter since conforming to the vehicle shape are broad terms. Plus, when the skin element is mounted on the vehicle, it has a mounting pattern.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26, 27, 32, and 41-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lurz in view of Blackwelder et al.

Lurz discloses all claimed parts of the invention but is silent on the actuatable material being piezoelectric material. However, Blackwelder et al teaches that actuatable materials being piezoelectric/piezo ceramic are well known in the art.

It would have been obvious to one skilled in the art at the time the invention was made to have replaced element 2 of Lurz's system with piezoelectrical material/ceramic as taught by Blackwelder et al to create a more reliable vortex generator.

Re claims 41-46, it would have been obvious to one skilled in the art at the time the invention was made to have placed the skin element(s) at the aerodynamic forebody or mount the skin elements circumferentially about the tip of the forebody, or place the skin elements on either side of the windward ray of the forebody, or mount the skin elements 50-120 degrees apart, or evenly disposed the skin elements about the nose of the forebody for accommodating roll variability, or concentrate the skin elements on a windward half of the surface having no roll variability so as to allow the aircraft to fly safely with reduced drag and to allow the mission to be accomplished.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lurz in view of Mangalam.

Lurz discloses all claimed parts except for the use of amplifiers and filters in the control loop. However, Mangalam discloses that the use of amplifiers and filters (see figure 4) are well known in the art.

It would have been obvious to one skilled in the art at the time the invention was made to have used amplifiers and filters in Lurz's system as taught by Mangalam to allow the controller to efficiently create the desired vortex.

Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lurz in view of McKillip.

Lurz discloses all claimed parts of the invention but is silent on the actuatable material being shape memory alloys. However, McKillip teaches that actuatable materials being shape memory alloys are well known in the art.

It would have been obvious to one skilled in the art at the time the invention was made to have replaced element 2 of Lurz's system with shape memory alloys as taught by McKillip to create a more reliable vortex generator.

Claims 37 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lurz in view of Wygnanski

Lurz discloses all claimed parts of the invention but is silent on the actuatable material being mountable like a cantilever. However, Wygnanski teaches that actuatable materials being mountable like a cantilever are well known in the art.

It would have been obvious to one skilled in the art at the time the invention was made to have replaced element 2 of Lurz's system with mountable cantilever as taught by Wygnanski to create a more reliable vortex generator.

Claims 33-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lurz in view of the admitted prior art (page 7).

Lurz discloses all claimed parts of the invention but is silent on the additional pressure transducers being surface mounted taps/manometers. However, the admitted prior art (page 7) teaches that pressure transducers being surface mounted taps/manometers are well known in the art.

Art Unit: 3644

It would have been obvious to one skilled in the art at the time the invention was made to use additional pressure transducers (surface mounted taps/manometers) in Lurz's as taught by the admitted prior art (page 7) to create a more reliable and accurate system.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Keefe, Cattafesta et al, Bauer et al, Mangiarotty, and Jajdalawi teach boundary layer control systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. Dinh whose telephone number is 703-308-2798. The examiner can normally be reached on Monday Through Friday 8-6, alternate Monday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Jordan can be reached on 703-306-4159. The fax phone numbers for the organization where this application or proceeding is assigned are 703-306-4195 for regular communications and 703-306-4195 for After Final communications.

Art Unit: 3644

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-4177.

T. Dinh
Examiner
Art Unit 3644

TD
August 23, 2002

T. Dinh
8/23/02